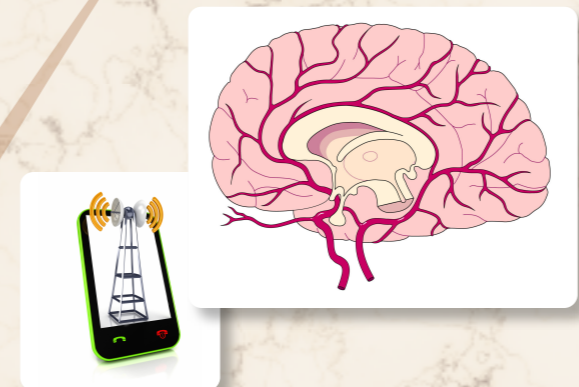


"The blood-brain barrier (BBB) is a cellular and metabolic barrier located at the capillaries in the brain that alters permeability, restricting the passage of some chemical substances and microscopic objects from the bloodstream into the neural tissue, while allowing other substances to pass into the brain. For example, the blood-brain barrier restricts the passage of bacteria, red-blood cells, and certain toxins and water-soluble molecules into the brain while allowing the passage of oxygen, glucose, amino acids, white-blood cells, anesthetics, and alcohol." [New World Encyclopedia](#)

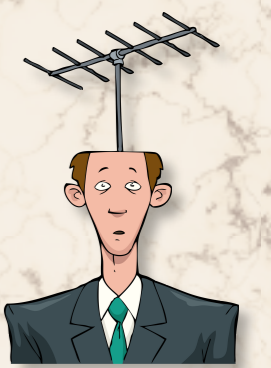
This map offers links to articles, studies and presentations on the effects of EMF on the BBB.

EMF AND THE BLOOD-BRAIN BARRIER: LEARNING FROM DR. LEIF SALFORD AND OTHERS

EMF/BBB Articles



- [Cell Phones damage BBB](#)
- [Blood-brain barrier leakage](#)
- ★ ["Leaky Brain Syndrome"](#)
- [Cell Phones, blood-brain barrier](#)
- [New study discussed, phones and BBB](#)
- ★ [BBB leaking, reduced impulse control](#)
- [MW, smart meters, Wi-Fi, cellphones, BBB](#)
- [Public Health Implications, Wireless Technologies](#)

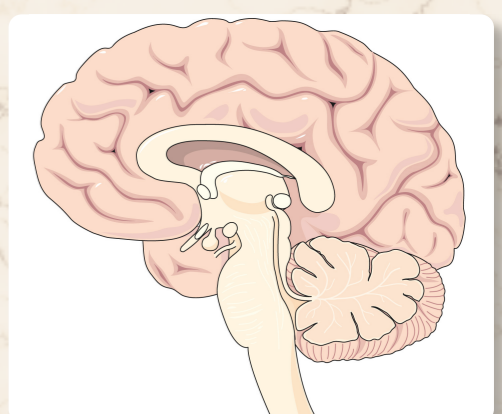


EMF/BBB Studies

- [Mix of effects](#)
- [Barrier damage](#)
- [Reversible MW effects on BBB](#)
- [Albumin leakage, barrier breach](#)
- [Thermal effect of EMF affects BBB](#)
- [RF, blood brain barrier permeability](#)
- [MW, mechanism of BB barrier injury](#)
- [MW thermal effect, BBB permeability](#)
- [BBB permeability, neuronal damage](#)
- [RF, permeability of blood-brain barrier](#)
- [MW, pathways involved, BBB damage](#)
- [HF-EMF, permeability of BBB to sucrose](#)
- [Focal barrier disruption, pulsed HF EMF](#)
- ★ [MW, BBB, neuronal degeneration, rats](#)
- [Windowing effect of albumin extravasation](#)
- [Extravasation seen in male brains, not female](#)
- [Increased permeability 7 days post-exposure](#)
- ★ [Modulated MW, BBB, male and female rates](#)
- [Reversible cerebral micro-vascular permeability](#)
- [MW, integrity of blood-brain barrier, transthyretin](#)
- [Microtubular blockade inhibited MW permeability](#)
- [Combined MW, pharma, nano., BBB permeability](#)
- ★ [BBB, neuron damage, 14 and 28 days later, rats](#)

"The weakest exposure level showed the greatest effect in opening the BBB."
[Cindy Sage](#),
[Dr. David Carpenter](#)

We are not necessarily safer by moving away from emitters/sources, or increasing the distance between the phone and our brain.



★ [BBB AND EMF VIDEO: DR. LEIF SALFORD](#)

[YouTube BBB](#) Overview

[BLOOD BRAIN BARRIER: PUBMED OVERVIEW](#)

COMPONENTS OF BBB

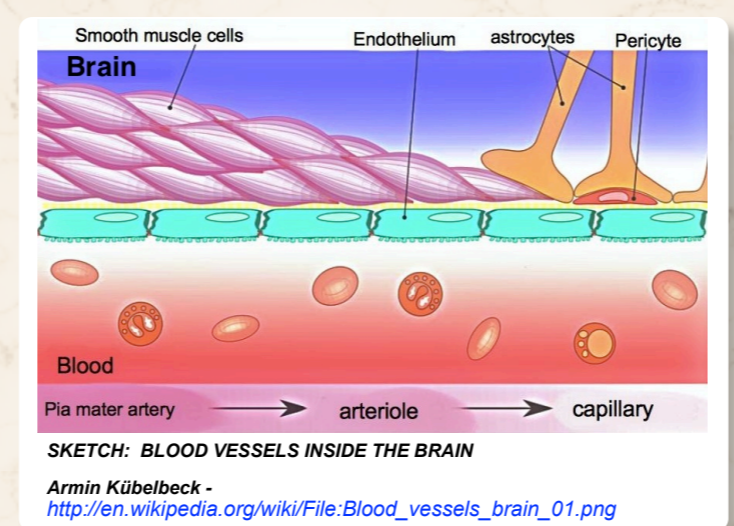
- Tight junctions between endothelial cells
- Adherent end-feet of surrounding astrocytes
- Paucity of endocytotic vesicles
- Matrix of the basement membrane
- Lipid barriers of cells restrict substances
- Enzymes destroy unwanted substances
- Pumps remove unwanted substances

EMF EFFECTS ON BBB

- Increased permeability to albumin, fibrinogen
- Albumin extravasation causes neuronal damage
- Male rats more affected in some studies of BBB
- MW caused tight junctions to broaden, fracture
- Increased endothelial vesicular transport

NORMAL BBB FUNCTION

- Barrier is tight in most of the brain
- Non-barrier areas are for monitoring, regulation, hormone release
- Water diffuses easily into the brain
- Gasses diffuse easily into the brain
- D-glucose is transported easily into the brain
- Necessary nutrients are transported into the brain
- Highly lipid soluble substances diffuse easily
- Important substances are transported on carriers
- There may be competition for carriers
- Toxins, bacteria are not diffused or transported into the brain



★ [BBB, INTESTINAL PERMEABILITY, AUTISM \(EMF NOT DISCUSSED\)](#)

SEE RELATED MAPS:

- [CNS, NEURODEGENERATION](#)
- [EMF AND BLOOD](#)
- [EMF AND THE BRAIN](#)
- [EMF, CALCIUM, WATER](#)
- [EMF AND MEMBRANES](#)
- [NONLINEARITY](#)

Home: [Oscillatorium](#)
Newest version: [this map](#)
Date of this update: 10-08-18